IN THE CLAIMS:

Please amend the claims as follows:

1-11. (Cancelled)

12. (Original) A method, comprising

determining a first chain location and first chain length of a first chain of zero bytes removed from a first compressed IPv6 address based on compression information of the first compressed IPv6 address, the first compressed IPv6 address having a first number of bytes, including a first number of pre-chain location bytes and a first number of post-chain location bytes;

determining a second chain location and second chain length of a second chain of zero bytes removed from a second compressed IPv6 address based on compression information of the second compressed IPv6 address, the second compressed IPv6 address having a second number of bytes, including a second number of pre-chain location bytes and a second number of post-chain location bytes;

comparing the compression information of the first compressed IPv6 address to the compression information of the second compressed IPv6 address;

when the compression information of the first compressed IPv6 address and the compression information of the second compressed IPv6 address are equal, comparing the first number of bytes to corresponding ones of the second number of bytes, and producing a result;

when the compression information of the first compressed IPv6 address and the compression information of the second compressed IPv6 address are not equal—comparing the first pre-chain location bytes to corresponding ones of the second pre-chain location bytes, and producing the result when at least one pair of such pre-chain corresponding bytes is different;

when no result is produced, comparing the first chain location to the second chain location, and producing the result when the first chain location and the second chain location are not equal;

when no result is produced, comparing the first chain length to the second chain length, and producing the result.

13. (Original) The method of claim 12, wherein the result is one of:

> the first compressed IPv6 address is larger than the second compressed IPv6 address;

> the first compressed IPv6 address is smaller than the second compressed IPv6 address; and

> the first compressed IPv6 address is equal to the second compressed IPv6 address.

14. (Original) The method of claim 12, wherein the comparison steps are performed one byte at a time, and upon producing the result, no further comparisons take place.

15. (Original) The method of claim 12, wherein at least one of the first number of pre-chain location bytes and second pre-chain location bytes is zero.

16-25. (Cancelled)

26. (New) A computer readable storage medium including a set of instructions executable by a processor, the set of instructions being operable to:

> determine a first chain location and first chain length of a first chain of zero bytes removed from a first compressed IPv6 address based on compression information of the first compressed IPv6 address, the first compressed IPv6 address having a first number of bytes, including a first number of pre-chain location bytes and a first number of post-chain location bytes;

> determine a second chain location and second chain length of a second chain of zero bytes removed from a second compressed IPv6 address based on compression information of the second compressed IPv6 address, the second compressed IPv6 address having a second number of bytes, including a second number of pre-chain location bytes and a second number of post-chain location bytes;

> compare the compression information of the first compressed IPv6 address to the compression information of the second compressed IPv6 address;

when the compression information of the first compressed IPv6 address and the compression information of the second compressed IPv6 address are equal, compare the first number of bytes to corresponding ones of the second number of bytes, and produce a result;

when the compression information of the first compressed IPv6 address and the compression information of the second compressed IPv6 address are not equal—compare the first pre-chain location bytes to corresponding ones of the second pre-chain location bytes, and produce the result when at least one pair of such pre-chain corresponding bytes is different;

when no result is produced, compare the first chain location to the second chain location, and produce the result when the first chain location and the second chain location are not equal;

when no result is produced, compare the first chain length to the second chain length, and produce the result.

27. (New) The computer readable storage medium of claim 26, wherein the result is one of the first compressed IPv6 address is larger than the second compressed IPv6 address, the first compressed IPv6 address is smaller than the second compressed IPv6 address, and the first compressed IPv6 address is equal to the second compressed IPv6 address.

28. (New) The computer readable storage medium of claim 26, wherein the comparison steps are performed one byte at a time, and upon producing the result, no further comparisons take place.

29. (New) The computer readable storage medium of claim 26, wherein at least one of the first number of pre-chain location bytes and second pre-chain location bytes is zero.